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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/308,770	10/28/1999	FRITZ SCHWERTFEGER	3259.81131	6628

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EXAMINER

JOLLEY, KIRSTEN

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/308,770

Applicant(s)

SCHWERTFEGER, FRITZ

Examiner

Kirsten C Jolley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 6-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 and 23 is/are allowed.
- 6) ☒ Claim(s) 1, 6-18, 20-22, 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The claim objection set forth in the prior Office action has been withdrawn in response to Applicant's arguments and amendment.

2. Applicant's arguments filed September 21, 2004 have been fully considered and are persuasive, and the rejections over Lentz in view of WO 96/06809 have been withdrawn.

Applicant argues that the method of WO '809 (claimed step a)) is a method of making a gel not a silica sol as stated by the Examiner, and that the gel forming step of Lentz (by an acid heating step) is an essential element of its invention. Applicant states that any combination of Lentz must include the acid heating step of a hydrosol to produce a hydrogel, and therefore one would not be motivated to substitute the hydrogel-forming steps of WO '809 into the process of Lentz.

3. Since the method of WO '809 includes all of the process steps of the claimed invention except the use of a disiloxane as a hydrophobing agent, the claims are newly rejected over the references of WO '809 in view of Lentz et al. as set forth below, and this action is made non-final.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 6-18, 20-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 96/06809 A1 in view of Lentz (US 3,122,520).

Frank et al. (US 5,866,027) is used as a working English translation of WO 96/06809 A1.

WO '809 discloses a process for the preparation of organically modified aerogels comprising the steps of claim 1 (col. 4, lines 28-50 of Frank et al.). WO '809 teaches that a surface-silylating substance is used whereby surface-modifying substances of the general formula R'_nMX_m are used to replace original surface groups with inert groups of the type MR'_n (col. 3, lines 21-64 of Frank et al.). It is noted that where X is a radical -OR", the surface-modifying substance of WO '809 is a siloxane. WO '809 lacks the teaching of using a disiloxane of the claimed formula. Since the list of surface-modifying substances of WO '809 is exemplary, one skilled in the art would have been motivated to look to the prior art for other surface-modifying substances that may be used in its invention.

Lentz et al. is cited for its teaching of organosilicon compounds that may be used as surface-silylating/modifying substances for a hydrogel compound that is subsequently washed free of water and dried. Lentz et al. teaches that the organosilicon compounds of its invention react with the original surface groups of a hydrogel according to the same reaction: $R_nSiX + HOSi$ yields $R_nSiOSi + HX$ (col. 3, lines 38-42). Lentz et al.'s organosilicon compounds usable for hydrophobing the hydrogel (col. 4, lines 11-27 and Examples of Lentz et al.) overlap those of WO '809, including the use of trimethylchlorosilane. Lentz et al. also teaches the use of disiloxanes of the claimed formula including hexaethyldisiloxane and hexamethyldisiloxane. It would have been obvious for one having ordinary skill in the art, seeing the references of WO '809 and Lentz et al. in combination, to have substituted any of the surface-silylating substances

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of Lentz et al., including hexaethyldisiloxane or hexamethyldisiloxane, as the surface-silylating substance in the invention of WO '809 with the expectation of successful results since WO '809 and Lentz et al. teach the organosilicon compounds are for the same purpose and are similarly for use in forming aerogels and the compounds react according to the same reaction.

As to claim 6-8, 18, 20, and 24, WO '809 additionally teaches steps of aging aerogels, adding fibers, increasing the mechanical stability of aerogels, and subcritical drying.

As to claim 9, WO '809 teaches washing until the water content is less than or equal to 5 wt% (col. 4, step d) of Frank et al.). As to claim 10, WO '809 teaches aliphatic or aromatic solvents in col. 3, lines 9-20.

As to claims 15 and 22, Lentz et al. teaches reacting the hydrogel with the surface-modifying organosilicon compound in the presence of a strong acid catalyst (col. 3). It would have been obvious to have used a catalyst in the method of WO '809 in order to increase the speed of the surface-modifying reaction with the expectation of successful results upon seeing the Lentz et al. reference since the reactions of WO '809 and Lentz et al. are similar.

As to claims 17 and 21, WO '809 teaches that the solvent for washing is protic or aprotic, and include aliphatic alcohols (col. 3, lines 9-16).

Allowable Subject Matter

6. Claims 19 and 23 are allowed because the prior art does not teach or suggest the claimed method of preparing an organically modified aerogel with permanently hydrophobic surface groups made by surface-silylating with a disiloxane of claimed formula I, and further prior to

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step c), washing the lyogel with a solution of an orthosilicate of the claimed formula capable of bringing about condensation.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kirsten C Jolley
Primary Examiner
Art Unit 1762

kcj